In The Specification

Please amend paragraphs [1121], [1126], [1139], [1141], [1151], [1155], [1208], [1238], [1243], [1244], [1252], and [1275] of the specification, as shown below.

[1121] The total transmit power, $P_{max,j}$, for each transmit antenna may be allocated to the N_G frequency subchannel groups in various manners. In one embodiment, the total transmit power is allocated equally among the N_G frequency subchannel groups such that $P_j(k) = P_{max,j} / N_G$. In another embodiment, the total transmit power can be allocated unequally among the N_G frequency subchannel groups while maintaining $\sum_{k=1}^{N_G} P_j(k) = P_{max,j}$. The total transmit power, $P_{max,j}$, may be allocated based on various techniques, including a "water-pouring" or "water-filling" technique that allocates transmit power such that throughput is maximized. The water-pouring technique is described by Robert G. Gallager in "Information Theory and Reliable Communication," John Wiley and Sons, 1968, which is incorporated herein by reference. A specific algorithm for performing the basic water-pouring process for a MIMO-OFDM system is described in U.S. Patent Application Serial No. 09/978,337, published as U.S. Patent Publication No. 2003-0072379, entitled "Method and Apparatus for Determining Power Allocation in a MIMO Communication System," ~~filed October 15, 2001,~~ assigned to the assignee of the present application and incorporated herein by reference. Transmit power allocation is also described in U.S. Patent Application Serial No. 10/017,308, issued as U.S. Patent No. 6,760,388, entitled "Time-Domain Transmit and Receive Processing with Channel Eigen-mode Decomposition for MIMO Systems," ~~filed December 7, 2001~~, assigned to the assignee of the present application and incorporated herein by reference. The optimum allocation of the total transmit power, $P_{max,j}$, for each of the N_T transmit antennas among the N_G frequency subchannel groups is typically complex, and iterative techniques may be used to solve for the optimum power allocation.

[1126] Other techniques to generate multiple beams for multiple terminals may also be used, and this is within the scope of the invention. For example, the beam steering may be performed based on a minimum mean square error (MMSE) technique. The CCMI and MMSE techniques are described in detail in U.S. Patent Application Serial No. U.S. Patent Application Serial Nos.

09/826,481, issued as U.S. Patent No. 6,771,706, and 09/956,449, published as U.S. Patent Publication No. 2003-0003880, both entitled "Method and Apparatus for Utilizing Channel State Information in a Wireless Communication System," ~~respectively filed March 23, 2001 and September 18, 2001,~~ both assigned to the assignee of the present application and incorporated herein by reference.

[1139] The scheduling of terminals for downlink data transmission and the scheduling of terminals based on priority are also described in U.S. Patent Application Serial No. 09/859,345, issued as U.S. Patent No. 6,662,024, entitled "Method and Apparatus for Allocating Downlink Resources in a Multiple-Input Multiple-Output (MIMO) Communication System," ~~filed May 16, 2001~~; U.S. Patent Application Serial No. 09/539,157, issued as U.S. Patent No. 6,493,331, entitled "Method and Apparatus for Controlling Transmissions of a Communications System," ~~filed March 30, 2000;~~ and U.S. Patent Application Serial No. 09/675,706, issued as U.S. Patent No. 6,745,044, entitled "Method and Apparatus for Determining Available Transmit Power in a Wireless Communication System," ~~filed September 29, 2000,~~ all assigned to the assignee of the present application and incorporated herein by reference.

[1141] In another downlink scheduling scheme, the transmit power is allocated such that approximately equal SNRs are achieved for all transmission channels used to transmit each data stream. A particular data stream may be transmitted via multiple transmission channels (i.e., via multiple spatial subchannels and/or multiple frequency subchannels), and these transmission channels may achieve different SNRs if equal transmit power is allocated to these transmission channels. By allocating different amounts of transmit power to these transmission channels, approximately equal SNRs may be achieved which would then allow a single common coding and modulation scheme to be used for the data stream transmitted on these transmission channels. In effect, the unequal power allocation performs a channel inversion on the transmission channels such that they appear as being similar at the receiver. Channel inversion of all transmission channels and the channel inversion of only the selected transmission channels are described in U.S. Patent Application Serial No. 09/860,274, published as U.S. Patent Publication No. 2003-0048856, ~~filed May 17, 2001,~~ U.S. Patent Application Serial No. 09/881,610, published as U.S. Patent Publication No. 2003-0112880, ~~filed June 14, 2001,~~ and

U.S. Patent Application Serial No. 09/892,379, issued as U.S. Patent No. 6,751,187, ~~filed June 26, 2001,~~ all three entitled "Method and Apparatus for Processing Data for Transmission in a Multi-Channel Communication System Using Selective Channel Inversion," assigned to the assignee of the present application, and incorporated herein by reference.

[1151] The successive cancellation receiver processing technique is described in further detail in U.S. Patent Application Serial No. 09/854,235, issued as U.S. Patent No. 6,785,341, entitled "Method and Apparatus for Processing Data in a Multiple-Input Multiple-Output (MIMO) Communication System Utilizing Channel State Information," ~~filed May 11, 2001,~~ and U.S. Patent Application Serial No. 09/993,087, published as U.S. Patent Publication No. 2003-0125040, entitled "Multiple-Access Multiple-Input Multiple-Output (MIMO) Communication System," ~~filed November 6, 2001,~~ both assigned to the assignee of the present application and incorporated herein by reference.

[1155] The successive cancellation receiver processing technique is described in further detail in U.S. Patent Application Serial No. 09/854,235, issued as U.S. Patent No. 6,785,341, entitled "Method and Apparatus for Processing Data in a Multiple-Input Multiple-Output (MIMO) Communication System Utilizing Channel State Information," ~~filed May 11, 2001,~~ and U.S. Patent Application Serial No. 09/993,087, published as U.S. Patent Publication No. 2003-0125040, entitled "Multiple-Access Multiple-Input Multiple-Output (MIMO) Communication System," ~~filed November 6, 2001~~, both assigned to the assignee of the present application and incorporated herein by reference.

[1208] Scheduling based on link margins and adaptive reuse are described in further detail in U.S. Patent Application Serial No. 09/532,492, published as U.S. Patent Publication No. 2002-0154705, entitled "High Efficiency, High Performance Communications System Employing Multi-Carrier Modulation," ~~filed March 30, 2000,~~ and U.S. Patent Application Serial No. 09/848,937, published as U.S. Patent Publication No. 2003-0013451, entitled "Method and Apparatus for Controlling Uplink Transmissions of a Wireless Communication System," ~~filed May 3, 2001,~~ both assigned to the assignee of the present application and incorporated herein by reference.

[1238] FIG. 9 shows an example coding and modulation scheme that may be used with full or partial CSI to provide improved performance (e.g., high throughput). Some other coding and modulation schemes are described in further detail in the aforementioned U.S. Patent Application Serial Nos. 09/854,235, issued as U.S. Patent No. 6,785,341, 09/826,481, issued as U.S. Patent No. 6,771,706, and 09/956,449, published as U.S. Patent Publication No. 2003-0003880, and in U.S Patent Application Serial No. 09/776,075, published as U.S. Patent Publication No. 2003-0043928, entitled "Coding Scheme for a Wireless Communication System," ~~filed February 1, 2001,~~ which is assigned to the assignee of the present application and incorporated herein by reference. Still other coding and modulation schemes may also be used, and this is within the scope of the invention.

[1243] Spatial/space-time processor 1010 may be designed to perform spatial processing or space-time processing on the received symbols to provide estimates of the transmitted modulation symbols. Spatial processing may be used for a non-dispersive channel (i.e., a flat fading channel) to null out the undesired signals and/or to maximize the received SNR of each of the constituent signals in the presence of noise and interference from the other signals. The spatial processing may be performed based on a channel correlation matrix inversion (CCMI) technique, a minimum mean square error (MMSE) technique, a full-CSI technique, or some other technique. Space-time processing may be used for a dispersive channel (i.e., a frequency selective fading channel) to ameliorate both "crosstalk" from the other transmitted signals as well as inter-symbol interference (ISI) from all of the transmitted signals due to dispersion in the channel. The space-time processing may be performed based on a MMSE linear equalizer (MMSE-LE), a decision feedback equalizer (DFE), a maximum-likelihood sequence estimator (MLSE), or some other technique. Spatial and space-time processing is described in further detail in the aforementioned U.S. Patent Application Serial No. 09/993,087, published as U.S. Patent Publication No. 2003-0125040.

[1244] For a particular frequency subchannel group, spatial/space-time processor 1010 receives and processes N_R received symbol vector streams and provides N_T recovered symbol vector streams. Each recovered symbol vector includes up to N_f recovered symbols that are estimates of

the N_k modulation symbols transmitted on the N_k frequency subchannels of the k-th frequency subchannel group in one symbol period. Spatial/space-time processor 1010 may further estimate the post-processed SNR for each received data stream. The SNR estimate may be derived as described in the aforementioned U.S. Patent Application Serial Nos. 09/956,449, published as U.S. Patent Publication No. 2003-0003880, 09/854,235, issued as U.S. Patent No. 6,785,341, and 09/993,087, published as U.S. Patent Publication No. 2003-0125040.

[1252] The successive cancellation receiver processing technique is described in further detail in the aforementioned U.S Patent Application Serial Nos. 09/854,235, issued as U.S. Patent No. 6,785,341, and 09/993,087, published as U.S. Patent Publication No. 2003-0125040, and by P.W. Wolniansky *et al.* in a paper entitled "V-BLAST: An Architecture for Achieving Very High Data Rates over the Rich-Scattering Wireless Channel," Proc. ISSSE-98, Pisa, Italy, which is incorporated herein by reference.

[1275] Various types of information for CSI and various CSI reporting mechanisms are also described in U.S Patent Application Serial No. 08/963,386, issued as U.S. Patent No. 6,574,211, entitled "Method and Apparatus for High Rate Packet Data Transmission," ~~filed November 3, 1997,~~ assigned to the assignee of the present application, and in "TIE/EIA/IS-856 cdma2000 High Rate Packet Data Air Interface Specification", both of which are incorporated herein by reference.